

FIG. 1



Bgl II  
ACAGGAATAACTTATAGAGATGGGCACCAGGAGCTACGTGGCTGCATTGATTGGAGATTTCATAAATACTGGAATCCTAATGCCAGATGTTCATGACTCAGAAATGAGTGTGGTGTCTGGGAG 840  
TGTCCTTATTTGAATATCTCTCACCCGTGGTCTCGATGCACCCGACGTAACCTCTAAAGTTATTGACCTTAGGATTACGCTACAGTACTGAGTCTTACTACACCCACAGACCCCTC  
T G I T Y R E W A P G A T W A A L I G D F N N W N P N A D V M T O N E C G V W E

Nco I Xho I  
ATCTTTTTCGCCGAATAATGCAGATGGTTCACCACCAATTCGCCATGGTTCTCGAGTAAAGATACGCATGGATACCTCATCTGGCAACAAGATTCTATTCTCTGCTGGATCAAGTTCTCA 960  
TAGAAAAACGGCTTATTACGCTACCAAGTGGTGGTTAAGGGTACCAAGAGCTCAATTTCTATGCGTACCTATGAGGTAGACCGTGTGTTCTAAGATAAGGACGAACCTAGTTCAAGAGT  
I F L P N N A D G S P P I P H G S R V K I R M D T P S G N K D S I P A W I K F S

Hind III  
GTTCAACCACCAGGTGAACCTCCCATATAATGGCATATACTATGATCTCCGAGGAGGAGAACTATGTGTTCAAAAAATCCTCAGCCAAAGACCAAAATCACTTCGGATTATGAGTCCG 1080  
CAAGTTCGTGGTCCACCTTGAGGTATATATACCGTATATGATGATAGGAGGCTCCTCCTCTTCATACACAAAGTTTATGAGTCCGTTCTCTGTTTAGTGAAGCCATAAATACTCAGC  
V O A P G E L P Y N G I Y Y D P P E E K Y V F K N P O P K R P K S L R I Y E S

Nde I  
CACGTTGGAATGAGTAGTACGGAGCCAGTAATTAACACATATGCCAACTTTAGAGATGATGCTCTCCGCATCAAAAAGCTTGGTACAAATGCTGTTCAGCTCATGGCTATTCAAGAG 1200  
GTGCAACCTTACTCATCATGCCCTGGTTCATTAATTGTGTATACGGTTGAAATCTCTACTACAGCAAGGAGCGTAGTTTTTCGAAACCGATGTTACGACAAGTCGAGTACCGATAAGTTCTC  
H V G M S S T E P V I N T Y A N F R D D V L P R I K K L G Y N A V O L M A I O E

Nsi I  
CATTCATATTATGCTAGTTTTGGGTATCAGGTCACAAACCTTTTATGTCAGCTAGCAGCCGATTTTGGAACTCCTGATGATGATTTAAAGTCCCTAGTAGATAAAGCTCAGAGTTAGGTCTTTCTT 1320  
GTAAGTATAATACGATCAAAACCCATAGTCAGTGTGTTGAAAATACGTCGATCGTCGGCTAAACCTTGAGGACTACTAAATTTACGGGATCATCTATTTCGAGTGTCTCAATCCAGAAGAA  
H S Y Y A S F G Y H V T N F Y A A S S R F G T P D D L K S L V D K A H E L G L L

Nsi I  
GTTTCATGCGATATTGTTTCATAGGCATGCATCAACTAATACGTTGGATGGGCTGAATATGTTTGTATGGTACGGATGGTGCATCTTTCACCTCTGGACCACGGGGTCATCTTGGATGTGG 1440  
CAAGAGTACCTATAACAAGTATCGGTACGTAGTTGATTATGCAACCTACCCGACTTATACAAACTACCATGCCCTACCAGTGAAGAGTGAACCTGGTGGCCCGAGTAGTAACCTACACC  
V L M D I V H S H A S T N T L D G L N M F D G T D G H Y F H S G P R G H H W M W

Nsi I  
GACTCTCGCCTTTTCAACTATGGGAGCTGGGAGGTTCTAAGGTTTCTTCTTTTCAAAATACAAGGTGGTGGTGGATGAGTACAAGTTTGATGGGTTTCAGATTGATGGGGTGACTTCAATG 1560  
CTGAGAGCGGAAAAGTTGATACCTCGACCCCTCCAAGATTCCAAGAAGAAAGTTTATGTTCCACCACCAACCTACTCATGTTCAAACTACCCCAAGTCTAAACTACCCCACTGAAGTTAC  
D S R L F N Y G S W E V L R F L L S N T R W W L D E Y K F D G F R F D G V T S M

FIG. 2-2

ATGTACACCCATCATGGATTGCAGGTAGATTTCACCGGGAACCTACAATGAATACCTTTGGATATGCAACTGATGTAGATGCTGTGGTTTATCTGTATGCTGTGAATGATATGATTCATGGT 1680  
 TACATGTGGGTAGTACCTAACGTCCTCATCTAAAGTGGCCGTTGATGTTACTTATGAAACCTATACGTTGACTACATCTACGACACCAAAATAGACTACGACAACTTACTATACCTAAGTACCA  
 M Y T H H G L O V D F T G N Y N E Y F G Y A T D V D A V V Y L M L L N D M I H G  
 CTCTTCCCAGAGGCTGTACCATTTGGTGAAGATGTTAGTGAATGCCAACAGTTTGCATTCCGGTTGAAGATGGTGGTGTGGCTTTTGATTATCGTCTCCACATGGCTGTTGCTGATATAAA 1800  
 GAGAAGGCTCTCCGACAGTGTAAACCACTTCTACAATCACCTTACGGTTGTCAAACGTAAGGCCAACCTTCTACCAACACACACCGGAACTAATAGCAGAGGTGTACCGACAAACGACTATTT  
 I F L P N N A D G S P P I P H G S R V K I R M D T P S G N K D S I P A W I K F S  
 Nde I  
 TGGGTGAGATTATTTCAGAAAGAGAGATGAAGATTGGGAAATGGGTGACATTGTACATATGCTGACCAACAGGGCGGTGGTTGGAAAAGTGTGTTTCTTATGCTGAAAGTCATGACACGAGCC 1920  
 ACCCAACTCTAATAAGTCTTCTCTACTTCTAACCCTTTTACCCACTGTAAACATGTATACGACTGGTTGTCGCCACCAACCTTTTTCACACACAAAGAATACGACTTTCAGTACTGCTCCGG  
 W V E I I O K R O E D W K M G D I V H M L T N R R W L E K C V S Y A E S H D O A  
 CTTGTTGGTGACAAAACCTATTGCTATTGCTGATGGACAAGGATATGTATGACTTTCATGGCTCGTGACAGACCATCTACTCTCTTATAGATCGTGAATAGCAATTGCACAAAATGATC 2040  
 GAACAACCACTGTTTGTATACGTAACGTAACACCGACTACCTGTTCCATACATACCTGAAGTACCGAGCACTGTCTGTGTAGATGAGGAGAATATCTAGCACCTTATCGTAACGTTGTTTACTAG  
 L V G D K T I A F W L M D K D M Y D F M A R D R P S T P L I D R G I A L H K M L  
 Nco I  
 AGGCTTATTACCATGGGCTTAGGGCGGAGAAGGATATTGAAATTTATGGGAATGAATTTGGACATCCTGTAGTGGATTGATTTTCCAAAGAGGGGATCGACATCTGCCCAATGGTAAAGTA 2160  
 TCCGAATAATGGTACCCGAATCCGCCCTCTTCCATATAAACTTAAATACCCCTTACTTAAACCTGTAGGACTCACCTAACTAAAGGTTCTCCCTTAGCTGTAGACGGGTTTACCATTTCAT  
 R L I T M G L G G E G Y L N F M G N E F G H P E W I D F P R G D R H L P N G K V  
 EcoR V  
 ATTCAGGGAACAACACAGTTATGATAAATGCCGTCGTAGATTGATGATCTAGGTGATGCAGACTATCTAAGATATCATGGAATGCAAGACTTTGATCAGGCAATGCAACATCTTTGAAGAA 2280  
 TAAGGTCCTTGTGGTGTCAATACATACTATTACGGCAGCATCTAAACTAGATCCACTACGTCCTGATAGATTCTATAGTACCTTACGTTCTCAAACCTAGTCCGTTACGTTGTAGAACTTCTT  
 I P G N N H S Y D K C R R R F D L G D A D Y L R Y H G M O E F D O A M O H L E E  
 GCCTATGGTTTCATGACTTCTGAGCACCACTATATATACCGAAGGATGAAGAGATCGGATCATTGCTTTTGAGAGGGGAAACCTTCTTTTGTATTCACTTTTCACTTGGACTAACAGC 2400  
 CGGATACCAAAAGTACTGAAGACTCGTGGTCATATATAGTGCCCTTCTCTACTTCCCTTAGCCTAGTAACAGAAACTCTCCCTTTTGGAAACAAAACATAAGTTGAAAGTAACTTGAATGTGCG  
 A Y G F M T S E H O Y I S R K D E G D R I I V F E R G N L V F V F N F H W T N S  
 TATTCAGATTACCGAGTTGGCTGCTTCAAGTCAGGAAAGTACAAGATTGTTTGGACTCGGATGATGGCTTGTTTGGAGGCTTCAACAGGCTTAGTCATGATCGCAGCACTTCACCTTT 2520  
 ATAAGTCTAATGGCTCAACCGACGAAGTTCAGTCCCTTTCATGTTCTAACAACAAACCTGAGCCTACTACCGAACAACCTCCGAAAGTTGTCCGAATCAGTACTACGGCTCGTGAAGTGGA  
 Y S D Y R V G C F K S G K Y K I V L D S D D G L F G G F N R L S H D A E H F T F

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FIG. 2-4

84	TTAGTTGGTCAGTTCTCACACTCTCTTAACCTTCTCAGCGGAAATGGGACACTACACCATATACAGGAATACGTTTTCCTTGTGCTCCACTCGGAAAATCTCAATCTACCGGCTTCCATGG	10	20	30	40	50	60	70	80	90	100	110	120
5	TTAGTTGGTCAGTTCTCACACTCTCTTAACCTTCTCAGCGGAAATGGGACACTACACCATATACAGGAATACGTTTTCCTTGTGCTCCACTATGCAAAATCTCAATCTACCGGCTTCCATGG												
1	TTAGTTGGTCAGTTCTCACACTCTCTTAACCTTCTCAGCGGAAATGGGACACTACACCATATACAGGAATACGTTTTCCTTGTGCTCCACTCTGCAAAATCTCAATCTACCGGCTTCCATGG												
264	GGTCTTCTCTGGAAGTCATCTCATGAATCTGACTCCTCAAAATGTAATGGTCACTGGCTTAAAGAGTCTCTTCTGATGGTCCGGAATGAATGCTATTCTTCTTCAACAGATCAATTTGGA	190	200	210	220	230	240	250	260	270	280	290	300
185	GGTCTTCTCTGGAAGTCATCTCATGAATCTGACTCCTCAAAATGTAATGGTCACTGGCTTAAAGAGTCTCTTCTGATGGTCCGGAATGAATGCTATTCTTCTTCAACAGATCAATTTGGA												
181	GGTCTTCTCTGGAAGTCATCTCATGAATCTGACTCCTCAAAATGTAATGGTCACTGGCTTAAAGAGTCTCTTCTGATGGTCCGGAATGAATGCTATTCTTCTTCAACAGATCAATTTGGA												
444	GGATGATAAGATTTGTAAGATGAAGTAAATAAAGAAATCTGTTCCAAATCGGGGAGACAGTTAGCATCTGAAAAAATTTGGATCTAAACCAAGGTCCATTCTCCACCCGGCAGAGGGCAAAG	370	380	390	400	410	420	430	440	450	460	470	480
365	GGATGATAAGATTTGTAAGATGAAGTAAATAAAGAAATCTGTTCCAAATCGGGGAGACAGTTAGCATCTGAAAAAATTTGGATCTAAACCAAGGTCCATTCTCCACCCGGCAGAGGGCAAAG												
361	GGATGATAAGATTTGTAAGATGAAGTAAATAAAGAAATCTGTTCCAAATCGGGGAGACAGTTAGCATCTGAAAAAATTTGGATCTAAACCAAGGTCCATTCTCCACCCGGCAGAGGGCAAAG												
624	ACAGTACAAAAGACTCCGAGAGAAGAAATTGACAAGTATGAAGGTAGTCTGGATGCAATTTTCTCGTGGCTATGAAAAGTTTGGTTTCTCACGCCAGTGAACACAGGAATAACTTATAGAGAGTG	550	560	570	580	590	600	610	620	630	640	650	660
545	ACAGTACAAAAGACTCCGAGAGAAGAAATTGACAAGTATGAAGGTAGTCTGGATGCAATTTTCTCGTGGCTATGAAAAGTTTGGTTTCTCACGCCAGTGAACACAGGAATAACTTATAGAGAGTG												
541	ACAGTACAAAAGACTCCGAGAGAAGAAATTGACAAGTATGAAGGTAGTCTGGATGCAATTTTCTCGTGGCTATGAAAAGTTTGGTTTCTCACGCCAGTGAACACAGGAATAACTTATAGAGAGTG												
804	AGATGTCATGACTCAGAATGAGTGTGGTCTCTGGGAGATCTTTTGGCCGAATAATGCAGATGGTTCAACCACCAATTTCCCAATGGTTCTCGAGTAAAGATACGCATGGATCTCCATCTGG	730	740	750	760	770	780	790	800	810	820	830	840
725	AGATGTCATGACTCAGAATGAGTGTGGTCTCTGGGAGATCTTTTGGCCGAATAATGCAGATGGTTCAACCACCAATTTCCCAATGGTTCTCGAGTAAAGATACGCATGGATCTCCATCTGG												
721	AGATGTCATGACTCAGAATGAGTGTGGTCTCTGGGAGATCTTTTGGCCGAATAATGCAGATGGTTCAACCACCAATTTCCCAATGGTTCTCGAGTAAAGATACGCATGGATCTCCATCTGG												
984	ATATAATGGCATATACTATGATCTCCCGAGGAGGAGAGATGTTGTTCAAAAATCCTCAGCCAAAAGAGACCAAAAATCACTTCGGATTATGAGTCGCACGTTTGAATGAGTAGTACCGGA	910	920	930	940	950	960	970	980	990	1000	1010	1020
905	ATATAATGGCATATACTATGATCTCCCGAGGAGGAGAGATGTTGTTCAAAAATCCTCAGCCAAAAGAGACCAAAAATCACTTCGGATTATGAGTCGCACGTTTGAATGAGTAGTACCGGA												
901	ATATAATGGCATATACTATGATCTCCCGAGGAGGAGAGATGTTGTTCAAAAATCCTCAGCCAAAAGAGACCAAAAATCACTTCGGATTATGAGTCGCACGTTTGAATGAGTAGTACCGGA												

FIG. 3-1

FIG. 3-1	FIG. 3-2
FIG. 3-3	FIG. 3-4

FIG. 3

130	140	150	160	170	180	
TGATCGAAGGACCTCCTCTTGGCTTTCTTCAACTTCAAGAAGGGCGGCTTTTCTAGGAG	csbe2con. seq					
CGATCGAGGACCTCCTCTTGGCTTTCTTCAACTTCAAGAAGGGCGGCTTTTCTAGGAG	20con. seq					
TGATCGAAGGACCTCCTCTTGGCTTTCTTCAACTTCAAGAAGGGCGGCTTTTCTAGGAG	35con. seq					
310	320	330	340	350	360	
AGCCCCGCGACAGTTTCAGAAGAATCCAGGCTTCTACTGATCTTGAGAGTCTCATTTAT	csbe2con. seq					
AGCCCCGCGACAGTTTCAGAAGAATCCAGGCTTCTACTGATCTTGAGAGTCTCATTTAT	20con. seq					
AGCCCCGCGACAGTTTCAGAAGAATCCAGGCTTCTACTGATCTTGAGAGTCTCATTTAT	35con. seq					
490	500	510	520	530	540	
AATATATGACATAGATCCAAAGCTTGACAGGCTTTCGTCACACCTTAGATTACCGGTATTC	csbe2con. seq					
AATATATGACATAGATCCAAAGCTTGACAGGCTTTCGTCACACCTTAGATTACCGGTATTC	20con. seq					
AATATATGACATAGATCCAAAGCTTGACAGGCTTTCGTCACACCTTAGATTACCGGTATTC	35con. seq					
670	680	690	700	710	720	
GGCACCCAGGAGCTACGTGGGCTGCATTGATTGGAGATTTCATAAATCCCTAATGC	csbe2con. seq					
GGCACCCAGGAGCTACGTGGGCTGCATTGATTGGAGATTTCATAAATCCCTAATGC	20con. seq					
GGCACCCAGGAGCTACGTGGGCTGCATTGATTGGAGATTTCATAAATCCCTAATGC	35con. seq					
850	860	870	880	890	900	
CAACAAAGATTCTATTCTGCTGGATCAAGTTCTCAGTTCAAGCACCAGGTGAATCCC	csbe2con. seq					
CAACAAAGATTCTATTCTGCTGGATCAAGTTCTCAGTTCAAGCACCAGGTGAATCCC	1805					
CAACAAAGATTCTATTCTGCTGGATCAAGTTCTCAGTTCAAGCACCAGGTGAATCCC	35con. seq					
1030	1040	1050	1060	1070	1080	
GCCAGTAATTAACACATATGCCAACTTTAGAGATGATGCTTCTCCGCATCAAAAAGCT	csbe2con. seq					
GCCAGTAATTAACACATATGCCAACTTTAGAGATGATGCTTCTCCGCATCAAAAAGCT	20con. seq					
GCCAGTAATTAACACATATGCCAACTTTAGAGATGATGCTTCTCCGCATCAAAAAGCT	35con. seq					

FIG. 3-2

1090	1100	1110	1120	1130	1140	1150	1160	1170	1180	1190
1164	TGGCTACAATGCTGTT	CAGTTCATGGCTATT	CAAGAGCATTCATATT	ATGCTAGTTTGGGTAT	CACCTCACAACCTTTT	ATGACAGCTAGCAGCCG	GAATTTGGAACCTCCTG			
1085	TGGCTACAATGCTGTT	CAGTTCATGGCTATT	CAAGAGCATTCATATT	ATGCTAGTTTGGGTAT	CACCTCACAACCTTTT	ATGACAGCTAGCAGCCG	GAATTTGGAACCTCCTG			
1081	TGGCTACAATGCTGTT	CAGTTCATGGCTATT	CAAGAGCATTCATATT	ATGCTAGTTTGGGTAT	CACCTCACAACCTTTT	ATGACAGCTAGCAGCCG	GAATTTGGAACCTCCTG			
1270	1280	1290	1300	1310	1320	1330	1340	1350	1360	1370
1344	CCATGCATCAACTAATA	CGTTGGATGGCTGAATA	TGTTGATGGTACGAT	TGGTACCTACTTTT	CACTCTGGACCTCCTG	ACTCTCGCCCTTT				
1265	CCATGCATCAACTAATA	CGTTGGATGGCTGAATA	TGTTGATGGTACGAT	TGGTACCTACTTTT	CACTCTGGACCTCCTG	ACTCTCGCCCTTT				
1261	CCATGCATCAACTAATA	CGTTGGATGGCTGAATA	TGTTGATGGTACGAT	TGGTACCTACTTTT	CACTCTGGACCTCCTG	ACTCTCGCCCTTT				
1450	1460	1470	1480	1490	1500	1510	1520	1530	1540	1550
1524	GTTTGTATGGGTT	CAGATTGATGGGTT	GACTTCAATGATGTA	CACCCATCATGGAT	TGCGAGTAGATTAC	CCGGCACTACAATGA	TACTTTGGATATGCA	ACTGATG		
1445	GTTTGTATGGGTT	CAGATTGATGGGTT	GACTTCAATGATGTA	CACCCATCATGGAT	TGCGAGTAGATTAC	CCGGCACTACAATGA	TACTTTGGATATGCA	ACTGATG		
1441	GTTTGTATGGGTT	CAGATTGATGGGTT	GACTTCAATGATGTA	CACCCATCATGGAT	TGCGAGTAGATTAC	CCGGCACTACAATGA	TACTTTGGATATGCA	ACTGATG		
1704	TGGTGAAGATGTTAGT	GGAAATGCCAACAGTT	TGCATTCCGGTTGA	AGATGGTGGCTTTG	ATTGATTATCGTCT	CCACATGGCTGT	TGCTGATAAAATGG	TTGAGATTA		
1625	TGGTGAAGATGTTAGT	GGAAATGCCAACAGTT	TGCATTCCGGTTGA	AGATGGTGGCTTTG	ATTGATTATCGTCT	CCACATGGCTGT	TGCTGATAAAATGG	TTGAGATTA		
1621	TGGTGAAGATGTTAGT	GGAAATGCCAACAGTT	TGCATTCCGGTTGA	AGATGGTGGCTTTG	ATTGATTATCGTCT	CCACATGGCTGT	TGCTGATAAAATGG	TTGAGATTA		
1810	1820	1830	1840	1850	1860	1870	1880	1890	1900	1910
1884	AAAGTGTGTTTCTTAT	GTCTGAAAGTCATGAC	CCAGGCCCTTGTGGT	GACAAAACCTATT	TGCATTTGGCTGAT	GGACAAGGATATGT	ATGACTTCATGGCT	CGTGACAGAC		
1805	AAAGTGTGTTTCTTAT	GTCTGAAAGTCATGAC	CCAGGCCCTTGTGGT	GACAAAACCTATT	TGCATTTGGCTGAT	GGACAAGGATATGT	ATGACTTCATGGCT	CGTGACAGAC		
1801	AAAGTGTGTTTCTTAT	GTCTGAAAGTCATGAC	CCAGGCCCTTGTGGT	GACAAAACCTATT	TGCATTTGGCTGAT	GGACAAGGATATGT	ATGACTTCATGGCT	CGTGACAGAC		
2064	CGGAGAAGGATATTT	TGAATTTTATGGGAA	ATGAATTTGGACA	TCCTCAGTGGATTG	ATTTCCAAGAGGGG	AGATCCACATCTCC	CAATTTGGTAAAC	CTAATTTCCAGGGAACA		
1985	CGGAGAAGGATATTT	TGAATTTTATGGGAA	ATGAATTTGGACA	TCCTCAGTGGATTG	ATTTCCAAGAGGGG	AGATCCACATCTCC	CAATTTGGTAAAC	CTAATTTCCAGGGAACA		
1981	CGGAGAAGGATATTT	TGAATTTTATGGGAA	ATGAATTTGGACA	TCCTCAGTGGATTG	ATTTCCAAGAGGGG	AGATCCACATCTCC	CAATTTGGTAAAC	CTAATTTCCAGGGAACA		
2170	2180	2190	2200	2210	2220					
2244	GCAAGAGTTTGATCA	GGCAATCCACATCTT	TGAAGAGCCATAT	TGGTTTCATGACTT	CTGAGCA					
2165	GCAAGAGTTTGATCA	GGCAATCCACATCTT	TGAAGAGCCATAT	TGGTTTCATGACTT	CTGAGCA					
2161	GCAAGAGTTTGATCA	GGCAATCCACATCTT	TGAAGAGCCATAT	TGGTTTCATGACTT	CTGAGCA					

FIG. 3-3



1200	1210	1220	1230	1240	1250	1260	
ATGATTTAAAGTCCCTAGATATAAGCTCACGAGTTAGGCTCTTCTTGTCTCATGGATATTGTTTCATAG	csbe2con. seq						
ATGATTTAAAGTCTCTAATAGATAAAGCTCACGAGTTAGGCTCTTCTTGTCTCATGGATATTGTTTCATAG	20con. seq						
ATGATTTAAAGTCTCTAATAGATAAAGCTCACGAGTTAGGCTCTTCTTGTCTCATGGATATTGTTTCATAG	35con. seq						
1380	1390	1400	1410	1420	1430	1440	
TCAACTATGGGAGCTGGGAGGTTCTAAGGTTTCTTCTTCAAAATACAAGGTGGTGGTGGATGAGTACAA	csbe2con. seq						
TCAACTATGGGAGCTGGGAGGTTCTAAGGTTTCTTCTTCAAAATGCAAGGTGGTGGTGGATGAGTACAA	20con. seq						
TCAACCATGGGAGCTGGGAGGTTCTAAGGTTTCTTCTTCAAAATGCAAGGTGGTGGTGGATGAGTACAA	35con. seq						
1560	1570	1580	1590	1600	1610	1620	
TAGATGCTGTGGTTTATCTGATGCTGTTGAATGATGATTCATGCTCTCTCCACAGGCTGTCAACCAT	csbe2con. seq						
TAGATGCTGTGGTTTATCTGATGCTGTTGAATGATGATTCATGCTCTCTCCACAGGCTGTCAACCAT	20con. seq						
TAGATGCTGTGGTTTATCTGATGCTGTTGAATGATGATTCATGCTCTCTCCACAGGCTGTCAACCAT	35con. seq						
1740	1750	1760	1770	1780	1790	1800	
TTCAGAAGAGAGATGAAGATTGGAAAATGGGTGACATTTGTACATATGCTGACCAACAGGCGGTGGTTGGA	csbe2con. seq						
TTCAGAAGAGAGATGAAGATTGGAAAATGGGTGACATTTGTACATATGCTGACCAACAGGCGGTGGTTGGA	20con. seq						
TTCAGAAGAGAGATGAAGATTGGAAAATGGGTGACATTTGTACATATGCTGACCAACAGGCGGTGGTTGGA	35con. seq						
1920	1930	1940	1950	1960	1970	1980	
CATCTACTCTCTTATAGATCGTGGATTTAGCATTTGCACAAAATGATCAGGCTTATTACCATGGCTTAGG	csbe2con. seq						
CATCTACTCTCTTATAGATCGTGGATTTAGCATTTGCACAAAATGATCAGGCTTATTACCATGGCTTAGG	1805						
CATCTACCCCTCTTATAGATCGTGGATTTAGCATTTGCACAAAATGATCAGGCTTATTACCATGGCTTAGG	35con. seq						
2100	2110	2120	2130	2140	2150	2160	
ATCACAGTTATGATATAAATGCCGTTCTGATCTAGGTTGATCTGACATCTAGATATATCATGGAAT	csbe2con. seq						
ATTACAGTTATGATATAAATGCCGTTCTGATCTAGGTTGATCTGACATCTAGATATATCATGGAAT	20con. seq						
ATTACAGTTATGATATAAATGCCGTTCTGATCTAGGTTGATCTGACATCTAGATATATCATGGAAT	35con. seq						

csbe2con. seq  
20con. seq  
35con. seq

FIG. 3-4

CTCTCTAATCTCTCAGCGAAATGGGACACTACCATATACAGGAATACGTTTTCCTTGCTCCACTCTGCAAAATCTCAATCTACCGGCTTCCATGGCTATCGGAGGACCTCCTCTTGCC  
 GAGAGATTGAAGA??GCTTTACCTGTGATGTGGTATAGTCCCTTATGCAAAAGGAACACGAGGTGAGACGT??AGAGTTAGATGGCCGAAGTACCGATAGCTCCTGGAGGAGAACGG 120  
 M G H Y T I S G I R F P C A P L C K S O S T G F H G Y R R T S S C  
 TTTCCCTTCAACTTCAAGGAGCGGTTTCTAGGAGGCTTCTCTCGAAAGTCATCTCATGAATCTGACTCCTCAAATGTAATGGTCACTGCTTCTAAAAGAGTCTTCTGATGGTCGGA  
 AAGGAAGTTGAAGTTCTCCGCAAAAGATCCTCCAGAGAAGACCTTTCAGTAGAGTACTTACAGTACGAGGATTTACATTTACCAGTGACGAAGATTTTCTCAGGAAGGACTACCAGCCT 240  
 L S F N F K E A F S R R V F S G K S S H E S D S S N V M V T A S K R V L P D G R  
 TTGAATGCTATTCTTCAACAGATCAATTGGAAAGCCCTGGCACAGTTTCAGAGAATCCAGGTGCTTACTGATGTTGAGAGTCTCATTTATGGATGATAAGATTGTTGAAGATGAAG  
 AACTTACGATAAGAAGAAGTTGCTTAGTTAACCTTCGGGGACCGTGTCAAAGTCTTCTTAGGTCCACGAATGACTACAACTCTCAGAGTAATACCTACTATTCTAACAACTTCTACTTC 360  
 I E C Y S S S T D O L E A P G T V S E E S O V L T D V E S L I M D D K I V E D E  
 Xmn I  
 TAAATAAAGAATCTGTTCCAAATGCGGGAGACAGTTAGCATCAGAAAAAATTGGATCTAAACCAAGGTCCATTCCTCCACCCGGCAGAGGGCAAAGAATATATGACATAGATCCCAAGCTTGA  
 ATTTATTCTTAGACAAGGTTACGCCCTCTGTCAATCGTAGCTTTTAACTAGATTGGTTCAGGTAAAGGAGTGGGCCGTCTCCCGTTTCTTATATACTGTATCTAGGTTCCGAAC 480  
 V N K E S V P M R E T V S I R K I G S K P R S I P P G R G O R I Y D I O P S L  
 Hinc II  
 CAGGCTTCGTCAACACCTAGATTACCGGTATTACAGTACAAAAGACTCCGAGAGAAGAAATTGACAAGTATGAAGGTAGTCTGGATGCAATTTCTCGTGGCTATGAAAAGTTTGGTTCT  
 GTCCGAAGCAGTTGTGGATCTAATGGCCATAAGTGTCATGTTTCTGAGGCTCTCCTTAACTGTTTCACTACTTCCATCAGACCTACGTAAAGAGACCGGATACCTTTTCAAAACCAAGA 600  
 T G F R O H L D Y R Y S O Y K R L R E E I O K Y E G S L O A F S R G Y E K F G F  
 CACGCAGTGAACAGGAATAACTTATAGAGAGTGGGCACAGGAGCTACGTGGGCTCATTTGAGATTTCATAAAGTGAATCCCTAATGCAGATGTCATGACTCAGAAATGACTGTG  
 GTGCGTCACTTTGTCCTTATTGAATATCTCTCACCCGTGGTCCCTCGATGCACCCGAGGTAACCTCTAAAGTTATTGACCTTAGGATTACGTTCTACAGTACTGAGTCTTACTCACAC 720  
 S R S E T G I T Y R E W A P G A T W A A L I G D F N N W N P N A D V M T O N E C

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FIG. 4-1  
 FIG. 4-2  
 FIG. 4-3  
 FIG. 4-4  
 FIG. 4

FIG. 4-1

Bgl II

Nco I Xho I

GTGTCGCGAGATCTTTTGGCGAATAATGCAGATGGTTCCACCACCAATTCCTCCATGGTTCTCGAGTAAAGATACGCATGGATACCTCATCTGGCAACAAGATTCATTCCTGCTTGGG 840  
CACAGACCTCTAGAAAAACGGCTTATTACGTCTACCAAGTGGTGTAAAGGGTACCAAGAGCTCATTTCTATGCGTACCTATGAGGTAGACCCGTTGTTTCTAAGATAAGGACGAAACCT  
G V W E I F L P N N A D G S P P I P H G S R V K I R M D T P S G N K D S I P A W

TCAAGTTCTCAGTTCAAGCACACAGGTGAACTCCCATATAATGGCATATACATATGATCTCTCCGAGGAGGAGAGTAATGTTCAAAAAATCCTCAGCCAAAAGACACCAAAATCATTTCGGA 960  
AGTTCAAGAGTCAAGTTCTGTTCCACTTGAGGGTATATACCGTATATGATACATAGGAGGGCTCCTCTCTTCATACACAAGTTTATTAGGAGTCGGTTTCTCTGTTTATTAGTGAACCTT  
I K F S V O A P G E L P Y N G I Y Y D P P E E E K Y V F K N P O P K R P K S L R

Hind III

TTTATGAGTCGCACGTTGGAATGAGTAGTACGGAGCCAGTAATTAACACATATGCCAACTTTAGAGATGATGTGCTTCTCTCCCATCAAAAAGCTTGGCTACAATGCTGTTCAGCTCATGG 1080  
AAATACTCAGCGTGCAACCTTACTCATCATGCGCTCGGTCAATTAATTGTGTATACGGTTGAAATCTCTACTACACGAAAGGAGCGTAGTTTTCGAACCGATGTACGACAAGTCGAGTACC  
I Y E S H V G M S S T E P V I N T Y A N F R D D V L P R I K K L G Y N A V O L M

CTATTCAAGAGCATTCATATATGCTAGTTTGGGTATCAGTCACAAACTTTTATGACAGTAGCAGCCGATTTGGAACTCTCTGATGATTTAAAGTCTCTAATAGATAAAGCTCAGCAGT 1200  
GATAAGTTCTCGTAAGTATAATACGATCAAAACCCATAGTCAGTGTTTGAAAATACGTCGATCGTCCGCTAAACCTTGAGGACTACTAAATTTACAGAGATTATCTATTTCGAGTGCTCA  
A I O E H S Y Y A S F G Y H V T N F Y A A S S R F G T P D D L K S L I D K A H E

Nsi I

TAGGTCTTCTTGTTCATGGATATTGTTTCATAGCCATGCATCAACTAATACGTTGGATGGGCTGAATATGTTGATGGTACGGATGGTCACTACTTTCACCTCTGGACCACGGGTCATC 1320  
ATCCAGAAGAACAAAGTACCTATAACAAGTATCGGTACGTAGTTGATTATGCAACCTACCCGACTTATACAAACTACCATGCCTACCAGTGAAGTGAAGCTGGTGCCCACTAG  
L G L L V L M D I V H S H A S T N T L D G L N M F D G T D G H Y F H S G P R G H

ATTGGATGTGGGACTCTCGCCTTTTCAACTATGGGAGCTGGGAGGTTCTAAGGTTTCTTTTCAAAATGCAAGTGGTGGTGGATGAGTACAAAGTTTGATGGGTTTCAGATTGATGGGG 1440  
TAACCTACACCCCTGAGAGCGGAAAAGTTGATACCCCTGACCCCTCCAAGATTCCAAGAAGAAGTTTACGTTCCACCACCAACCTACTCATGTTCAAACCTACCCCAAGTCTAAACTACCCCC  
H W M W O S R L F N Y G S W E V L R F L L S N A R W L D E Y K F D G F R F D G

TGACTTCAATGATGACCCATCATGGATTGCAAGTAGATTTTACCGGCAACTACAATGAATACCTTTGGATATGCAACTGATGTAGATGCTGTGGTTTATTGTGATGCTGTGTAATGATA 1560  
ACTGAAGTTACTACATGTGGGTAGTACCTAACGTCCATCTAAAATGGCGTTGATGTACTTATGAACCTATACGTTGACTACATCTACGACACCAAAATAAACTACGACAACCTTACTAT  
V T S M M Y T H H G L O V D F T G N Y N E Y F G Y A T D V D A V V Y L M L L N D

TGATTTCATGGTCTTCCCAGAGGCTGTACCAATTGGTGAAGATGTTAGTGAATGCCAACAGTTTGCATTCGGTTGAAGATGGTGGTGTGGCTTGTGATTATCGTCTCCACATGGGTG 1680  
ACTAAGTACCAGAGAAGGTCTCCGACAGTGTAAACCACTTCTACAATACCTTACGGTTGTCAAACCTGAAGCCCACTTCTACCACCAACCAACCTAATAAGCAGAGGTGTACCGAC  
M I H G L F P E A V T I G E D V S G M P T V C I P V E D G G V G F D Y R L H M A

FIG. 4-2

TTGCTGATAAATGGGTTGAGATTATTCAAGACAGAGATGAAGATTGGAAAATGGGTGACATTGTACATATCTGACCAACAGCGCGTGGTTGAAAAGTGTCTTCTTATGCTGAAAGTC 1800  
 AACGACTATTACCCAACTCTAATAAGTCTTCTCTACTTCTAACCCTTTTACCCTGTAAACATGTATACGACTGGTTGTCCGCCACCAACCTTTTTCACACAAAAGAAATACGACTTTTCAG  
 V A D K W V E I I O K R D E D W K M G D I V H M L T N R R W L E K C V S Y A E S  
 ATGACCAGGCCCTTGTGGTGACAAAACATATTGCATTTTGGCTGATGGACAAGGATATGTATGACTTCATGGCTCTTGACAGACCATCTACTCTCTCATAGATCGTGGAGTAGCATTTGC 1920  
 TACTGGTCCGGGAACAACCACTGTGTTTGAATAACGTAAACCCGACTACCTGTTCCTATACATACACTGAAGTACCGAGAACTGTCTGGTAGATGAGGAGAGTATCTAGCACCTCATCTCGTAACG  
 H D O A L V G D K T I A F W L M D K D M Y D F M A L D R P S T P L I D R G V A L  
 BclI                      NcoI  
 ACAAATGATCAGGCTTATTACCATGGGATTAGCGGAGAGGATATTGAAATTTTATGGGAAATGAATTTTGGACACCCCGAGTGGATTGATTTTCCAAGAGGTGATCTACATCTTCCCCA 2040  
 TGTTTACTAGTCCGAATAATGGTACCCCTCTTCCCTATAAACTTAAATACCCCTTACTTAAACCTGTGGGGCTCACCTAACTAAAGGTTCTCCACTAGATGTAGAAGGGT  
 H K M I R L I T M G L G G E G Y L N F M G N E F G H P E W I D F P R G D L H L P  
 EcoRV                      BclI  
 GTGGTAAATTTGTTCTCTGGGAACAATACAGTTATGATAAATGCCGGCGTAGGTTTGATCTAGGCAATTCAAAGCATCTGAGATATCATGGAATGCAAGAGTTTGATCAAGCAATTTCAGC 2160  
 CACCATTAAACAAGGACCCCTTGTTAATGTCAATACTATTTACGGCGCGCATCCAACTAGATCCCGTTAAGTTTCGTAGACTCTATAGTACCTTACGTTCTCTCAAACTAGTTTCGTTAAGTCG  
 S G K F V P G N N Y S Y D K C R R R F D L G N S K H L R Y H G M O E F D O A I O  
 ATCTTGAAGAAGCCCTATGGTTTCATGACTTCTGAGCACCATAACATATACCGAAGGATGAAAGGGATCGGATCATTTGTCTTCGAGAGGGGAAACCTCGTTTTTGTATTCAATTTTCATT 2280  
 TAGAACTTCTTCGGATACCAAGTACTGAAGACTCGTGGTTATGTATAGTCCCTTCTCTACTTTCCCTAGCCTAGTAACAGAAGCTCTCCCTTTGGAGCAAAAACATAAGTTAAAAGTAA  
 H L E E A Y G F M T S E H O Y I S R K D E R D R I I V F E R G N L V F V F N F H  
 GGACTAGCAGCTATTCCGGATTACCGAGTTGGCTGCTTAAAGCCAGGAAGTACAAGATAGTCTTTGGATTTCAGATGATCCCTTTGTTGGAGGCTTTGGCAGGCTTAGTCATGATGCAGAGC 2400  
 CCTGATCGTGATAAGCCTAATGGCTCAACCGACGAAATTTCCGGTCCCTTCATGTTCTATCAGAACTTAAGTCTACTAGGAAACAAACCTCCGAAACCGTCCGAAATCAGTACTACGTCCTCG  
 W T S S Y S D Y R V G C L K P G K Y K I V L D S D D P L F G G F G R L S H D A E  
 ACTTCAGCTTTGAAGGTGGTACGATAACCGGCCCTCGATCCCTTCATGGTGTACACACCATGTAGAACAGCAGTGGTCTATGCTTTAGTGGAGGATGAAGTGGAGAAATGAATTGGAACCTG 2520  
 TGAAGTCGAAACTTCCCACTATGTCGCGGAGCTAGGAAGTACCATGTGTGGTACATCTTGTGTCACCATGTAACGAAATACCTCTCTACTTTCACCTCTTACTTAACCTTGGAC  
 H F S F E G W Y D N R P R S F M V Y T P C R T A V V Y A L V E D E V E N E L E P  
 TCGCCGGTTAAGATATATCTTTAAACAACAGGTTCTGAAGCAGGAATGCCATTATTGATCTTCCCTATGTT 2588  
 AGCGGCAATTCTATATAGAATTGTGTCCAAGACTTCGTCTCTACGGTAATAACTAGAAGGATACAA  
 V A G

FIG. 4-3

125+94. seq	r60	r70	r80	r90	r100	r110	r120
116. seq	TAGTTTTGGGTACCATGTACAAACATTTTTCACCTAGCAGCCGATTGGAACTCCTGATGATTTGAAG						
	TAGTTTTGGGTA CA GTCACAAACTTTTGCA CTAGCAGCCGATTGGAACTCCTGATGATTT AAG						
	TAGTTTTGGGTATCAGTCAAACTTTATGATGAGCTAGCAGCCGATTGGAACTCCTGATGATTTAAAG						
	r1140	r1150	r1160	r1170	r1180	r1190	r1200
	r130	r140	r150	r160	r170	r180	r190
125+94. seq	TCCTTTAATAGATAAAGCTCATGAGTTAGGCTGTCTTCATGATATTTTCATAGCCATGGCTCAA						
116. seq	TCT TAATAGATAAAGCTCA GAGTTAGG CT CTGTCTCATGATATTTTCATAGCCATGC TCAA						
	TCTCTAATAGATAAAGCTCACGAGTTAGGCTCTCTTGTGTCATGATATTTTCATAGCCATGCATCAA						
	r1210	r1220	r1230	r1240	r1250	r1260	r1270
	r200	r210	r220	r230	r240	r250	r260
125+94. seq	ATAATACGTTGGATGGGCTGAACATGTTGATGGTACGGATAGTCACACTACTTCCACTCCGGATCACGGGG						
116. seq	TAATACGTTGGATGGGCTGAAA ATGTTTGATGGTACGGAT GTCACTACTT CACTC GGA CACGGG						
	CTAATACGTTGGATGGGCTGAAAATATGTTGATGGTACGGATGGTCACTACTTTCACCTGGACCACGGG						
	r1280	r1290	r1300	r1310	r1320	r1330	r1340
	r270	r280	r290	r300	r310	r320	r330
125+94. seq	TCATCATTTGGTTGTGGGACTCTCGCCTTTCAACTATGGAAGCTGGAGGTGCTAAGATTTCTTCTTCA						
116. seq	TCATCATTTGG TTGTTGGACTC CGCTTTTCAACTATGG AGTGGGAGGT CTAAG TTTCTTCTTCA						
	TCATCATTTGGATGGGACTCCGCTTTTCAACTATGGGAGCTGGAGGTTCTAAGGTTTCTTCTTCA						
	r1350	r1360	r1370	r1380	r1390	r1400	r1410
	r340	r350	r360	r370	r380	r390	r400
125+94. seq	AATGCAAGATGGTGTGGAAGATACAGTTTTCAGTGGTTCATGATGGTTCATGATTTCCATGATGT						
116. seq	AATGCAAG TGTGTTGGA GATACA GTTTGATGG TT AGATTTGATGGGTGACTC ATGATGT						
	AATGCAAGTGGTGTGATGAGTACAAAGTTTATGATGGTTCAGATTTGATGGGTCAATGATGT						
	r1420	r1430	r1440	r1450	r1460	r1470	r1480
	r410	r420	r430	r440	r450	r460	r470
125+94. seq	ACACTCCCCATGGTTGCAGTAGCTTTTACTGGCACTACAAATGAGTACTTTGGATATGCAACTGATGT						
116. seq	ACAC C CATGG TTGAGTAG TTTTAC GGCACTACATGA TACTTTGGATATGCAACTGATGT						
	ACACCCATCATGGATTGCAGGTAGATTTTACCGCACTACAAATGATACTTTGGATATGCAACTGATGT						
	r1490	r1500	r1510	r1520	r1530	r1540	r1550
	r480	r490	r500	r510	r520	r530	r540
125+94. seq	AGATGCTGTGATTTTATTTGATGCTTGTGAATGATATGATTTACCGTCTTTTCCCTGAGGTGTACCATT						
116. seq	AGATGCTGTG TTTATTTGATGCT TGAATGATATGATCA GGCTT TTTCC GAGCTGT ACCATT						
	AGATGCTGTGTTTATTTGATGCTGTGATGATATGATTTATGATGCTTCTTCCAGAGGTGTACCATT						
	r1560	r1570	r1580	r1590	r1600	r1610	r1620
	r550	r560	r570	r580	r590	r600	r610
125+94. seq	GGTGAAGATGTTAGCGGAAGCCAACTTTTGCATCCAGTGAAGATGGTGGTGGATTTGATTACC						
116. seq	GGTGAAGATGTTAG GGAA GCCAACA TTTGCACTCC GT GAAGATGGTGGTGG TTTGATTA C						
	GGTGAAGATGTTAGTGAATGCCAACAGTTTTCAGTATGATTTCCGTTGAAGATGGTGGTGGTGGTATTC						
	r1630	r1640	r1650	r1660	r1670	r1680	r1690
	r620	r630	r640	r650	r660	r670	r680
125+94. seq	GTCTCCACATGGCCATTGCCGATAAATGGATTTGATTTCTTAAGAAGAGAGATGAGGACTGGAAAATGGG						
116. seq	GTCTCCACATGGC TTGC GATAAATGG TTTGATTT TTAAGAAGAGATGA GA TGGAAAATGGG						
	GTCTCCACATGGCTGTGCTGATAAATGGTGGATTTATTCAGAAGAGAGATGAGGACTGGAAAATGGG						
	r1700	r1710	r1720	r1730	r1740	r1750	r1760

FIG. 5-1

FIG. 5-2

FIG. 5-3

FIG. 5

FIG. 5-1

125+94. seq r690 r700 r710 r720 r730 r740 r750  
 TGACATTGTGCATACACTACCAACAGAGGTGGTTGGAAAAATCTGTTGCTTATGCTGAAAGTCATGAC r750  
 116. seq TGACATTGT CATA CT ACCAACAG GTGGTTGGAAAA TGTGTT CTTATGCTGAAAGTCATGAC  
 TGACATTGTACATATGCTGACCAACAGGGGTGGTTGGAAAAAGTGTGTTCTTATGCTGAAAGTCATGAC  
 r1770 r1780 r1790 r1800 r1810 r1820 r1830  
 125+94. seq r760 r770 r780 r790 r800 r810 r820  
 CAAGCTCTGTTGGTGACAAAACATAATTCGCAATTTGGCTGATGGACACAGCATGTACGACTTCATGGCTC  
 CA GC CTGTTGGTGACAAAACATAATTCGCAATTTGGCTGATGGACACAGCA ATGTA GACTTCATGGCTC  
 116. seq CAGGCCCTTGTGGTGACAAAACATAATTCGCAATTTGGCTGATGGACACAGCATGTATGACTTCATGGCTC  
 r1840 r1850 r1860 r1870 r1880 r1890 r1900  
 125+94. seq r830 r840 r850 r860 r870 r880 r890  
 GTGACAGACCATCTACTCCTCTTATAGATCGTGAATAGCATTTGCACAAAATGATCAGGCTTATACCAT  
 TGACAGACCATCTAC CCTCT ATAGATCGTGA TAGCATTTGCACAAAATGATCAGGCTTATACCAT  
 116. seq TTGACAGACCATCTACCCCTCTCATAGATCGTGGAGTAGCATTTGCACAAAATGATCAGGCTTATACCAT  
 r1910 r1920 r1930 r1940 r1950 r1960 r1970  
 125+94. seq r900 r910 r920 r930 r940 r950 r960  
 GGGCTTAGCGGAGAGGATATTTGAATTTATCGGAAATGAATTTGGACATCCTGAGTGGATTGATTTT  
 GGG TTAGCGGAGAGGATATTTGAATTTATCGGAAATGAATTTGGACA CC GAGTGGATTGATTTT  
 116. seq GGGATTAGCGGAGAGGATATTTGAATTTATCGGAAATGAATTTGGACACCCCGAGTGGATTGATTTT  
 r1980 r1990 r2000 r2010 r2020 r2030 r2040  
 125+94. seq r970 r980 r990 r1000 r1010 r1020 r1030  
 CCAAGAGGGATCGACATCTGCCAATGGTAAAGTAATTCAGGAAACACCACTTATGATAAATGCC  
 CCAAGAGG GATC ACATCT CCA TGGTAA T TTCC GGAACAA ACAGTTATGATAAATGCC  
 116. seq CCAAGAGGTGATCTACATCTTCCAGTGGTAAATTTGTTCTCGGAAACAATTACAGTTATGATAAATGCC  
 r2050 r2060 r2070 r2080 r2090 r2100 r2110  
 125+94. seq r1040 r1050 r1060 r1070 r1080 r1090 r1100  
 GTCGTAGATTGTATCTAGGTATGACACTATCTAAGATATCATGGAATGCAAGAGTTTGATCAGGCAAT  
 G CGTAG TTTGATCTAGG AT CA A ATCT AGATATCATGGAATGCAAGAGTTTGATCA GCAAT  
 116. seq GCGTAGGTTTGATCTAGGCAATGCAAGCATCTGAGATATCATGGAATGCAAGAGTTTGATCAAGCAAT  
 r2120 r2130 r2140 r2150 r2160 r2170 r2180  
 125+94. seq r1110 r1120 r1130 r1140 r1150 r1160 r1170  
 GCAACATCTTGAAGAAGCCATGTTTCATGACTTCTGAGCAACAGTATATATCA CGGAAGGATGAAGGA  
 CA CATCTTGAAGAAGCCATGTTTCATGACTTCTGAGCAACCA TA ATATCAGGAAGGATGAA G  
 116. seq TCAGCATCTTGAAGAAGCCATGTTTCATGACTTCTGAGCAACCAATACATATCAGGAAGGATGAAGG  
 r2190 r2200 r2210 r2220 r2230 r2240 r2250  
 125+94. seq r1180 r1190 r1200 r1210 r1220 r1230 r1240  
 GATCGGATCATTTGCTTTGAGAGGGGAAACCTTGTGTTTGTATCAACTTTCATTTGGACTAACAGCTATT  
 GATCGGATCATTTGCTTT GAGAGGGGAAACCT GTTTTGTATCA TTTTCATTTGGACTA CAGCTATT  
 116. seq GATCGGATCATTTGCTTTGAGAGGGGAAACCTTGTGTTTGTATCAATTTTCATTTGGACTAGCAGCTATT  
 r2260 r2270 r2280 r2290 r2300 r2310 r2320  
 125+94. seq r1250 r1260 r1270 r1280 r1290 r1300 r1310  
 CAGATTACCGAGTTGGCTGCTTCAAGTCAGGAAGTACAAGATTTTGGACTCGGATGCTGTTGTT  
 C GATTACCGAGTTGGCTGCTT AAG CAGGAAGTACAAGAT GT TTGGA TC GATGAT TTGTT  
 116. seq CCGATTACCGAGTTGGCTGCTTAAAGCCAGGAAGTACAAGATAGTCTTTGGATTCAAGATGCTTTGTT  
 r2330 r2340 r2350 r2360 r2370 r2380 r2390

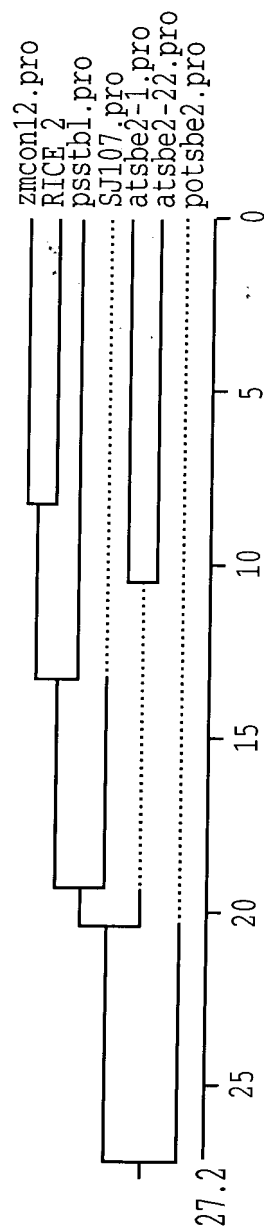
125+94. seq	r1320	r1330	r1340	r1350	r1360	r1370	r1380
	TTGAGGCTTCAACAGGCTTAGTCATGATGCCGAGCACTTACACCTTTGACGGTGGTATGATAACCGGCCT						
116. seq	TTGAGGCTT	CAGGCTTAGTCATGATGC	GAGCACTTCA	CTTTGA	GGTGGTA	GATAACCGGCCT	
	TTGAGGCTTTGGCAGGCTTAGTCATGATGCAGAGCACTTACAGCTTTGAAGGTGGTACGATAACCGGCCT						
	r2400	r2410	r2420	r2430	r2440	r2450	r2460
	r1390	r1400	r1410	r1420	r1430	r1440	r1450
125+94. seq	CGGTCCTTCATGGGTATATGCACCATCTAGCACAGCAGTGGTCCATGCTTTAGTAGAAGATGAAG						
	CGGTCCTTCATGGGTATATGCACCATCTAGCACAGCAGTGGTCCATGCTTTAGTAGAAGATGAAG						
116. seq	CGGTCCTTCATGGGTATATGCACCATCTAGCACAGCAGTGGTCCATGCTTTAGTAGAAGATGAAG						
	r2470	r2480	r2490	r2500	r2510	r2520	r2530

FIG. 5-3

FIG. 6

125-94. pro	r10	r20	r30	r40	r50	r60	r70
	SFGYHVTNFFAPSSRFGT	PDLLKSLIDKAHELGLLVLM	DIVHSHASNNTLDGLNMF	DGTD	SHYFHSGSRG		
116. pro	SFGYHVTNF:A:SSRFGT	PDLLKSLIDKAHELGLLVLM	DIVHSHASNNTLDGLNMF	DGTD	HYFHSGSRG		
	SFGYHVTNFYAASSRFGT	PDLLKSLIDKAHELGLLVLM	DIVHSHASNNTLDGLNMF	DGTD	PHYFHSGSRG		
	u370	u380	u390	u400	u410	u420	u430
125-94. pro	r80	r90	r100	r110	r120	r130	r140
	HHWLWDSRLFNYSWEVL	RFLLSNARWLLFEYRFD	GVGFRFDGVTSMYTPH	GLOVAF	TGNYNEFYGYATDV		
116. pro	HHW:WDSRLFNYSWEVL	RFLLSNARWLLFEY:FD	GFRFDGVTSMYT:HGLOV	FTGNYNEFYGYATDV			
	HHW:WDSRLFNYSWEVL	RFLLSNARWLLDEYKFD	GVGFRFDGVTSMYTHH	GLOVDFTGNYNEFYGYATDV			
	u440	u450	u460	u470	u480	u490	u500
125-94. pro	r150	r160	r170	r180	r190	r200	r210
	DAVIYMLVNDMIHGLF	PEAVTIGEDVSGKPTFC	IPVEDGGVGVFVRLHMA	ADKWIEILK	KRDEDKMG		
116. pro	DAV:YML:NDMIHGLF	PEAVTIGEDVSG:PT	CIPVEDGGVGVFVRLHMA	ADKW:EI::KRDEDKMG			
	DAVYMLVNDMIHGLF	PEAVTIGEDVSGMPTVC	IPVEDGGVGVFVRLHMA	ADKWVEIIOKRDEDKMG			
	u510	u520	u530	u540	u550	u560	u570
125-94. pro	r220	r230	r240	r250	r260	r270	r280
	DIVHTLTNRRLWLEKCV	AYAESHDALVGDKTIA	FWLMDKMDYDFMAR	DRPSTPLIDRG	IALHMKIRLITM		
116. pro	DIVH:LTNRRLWLEKCV	:YAESHDALVGDKTIA	FWLMDKMDYDFMA	DRPSTPLIDRG:ALHMKIRLITM			
	DIVHMLTNRRLWLEKCV	SYAESHDALVGDKTIA	FWLMDKMDYDFMAL	DRPSTPLIDRG	VALHMKIRLITM		
	u580	u590	u600	u610	u620	u630	u640
125-94. pro	r290	r300	r310	r320	r330	r340	r350
	GLGGEYLNFMGNEFGH	PEWIDFPRGDLHLPNG	KVIPGNHNSYDKRRR	FDLGDADYLRYHGM	OEFFDOAM		
116. pro	GLGGEYLNFMGNEFGH	PEWIDFPRGD:HLP:GK	:PGNN.SYDKRRRFDLGD::	RYHGM	OEFFDOA:		
	GLGGEYLNFMGNEFGH	PEWIDFPRGDLHLP	SGKFVPGNNYSYDKRRR	FDLGDNSK	HRHYHGM	OEFFDOAI	
	u650	u660	u670	u680	u690	u700	u710
125-94. pro	r360	r370	r380	r390	r400	r410	r420
	OHLEAYGFMTSEHOYI	SRKDEGRILVFERGNL	VVFVFNHWTNSYSDYR	VGCFKSGKYKIVL	DDGLF		
116. pro	OHLEAYGFMTSEHOYI	SRKDEGRILVFERGNL	VVFVFNHWT:SYSDYR	VGKSGKYKIVL	DDGLF		
	OHLEAYGFMTSEHOYI	SRKDEGRILVFERGNL	VVFVFNHWTSSYSDYR	VGCLKSGKYKIVL	DDGLF		
	u720	u730	u740	u750	u760	u770	u780
125-94. pro	r430	r440	r450	r460	r470		
	GGFNRLSHDAEHFT	FDGWYDNRPRSF	MYAPSR	TAHVHALVEDE	ENEAE	NEVES	
116. pro	GGF:RLSHDAEHF:F	:GWYDNRPRSF	MY:P:RTAVV	ALVEDE:::	VES		
	GGFRLSHDAEHF	SFEGWYDNRPRSF	MYVTPC	RTAVV	ALVEDE	NEVE	EPVAG
	u790	u800	u810	u820	u830		

FIG. 7







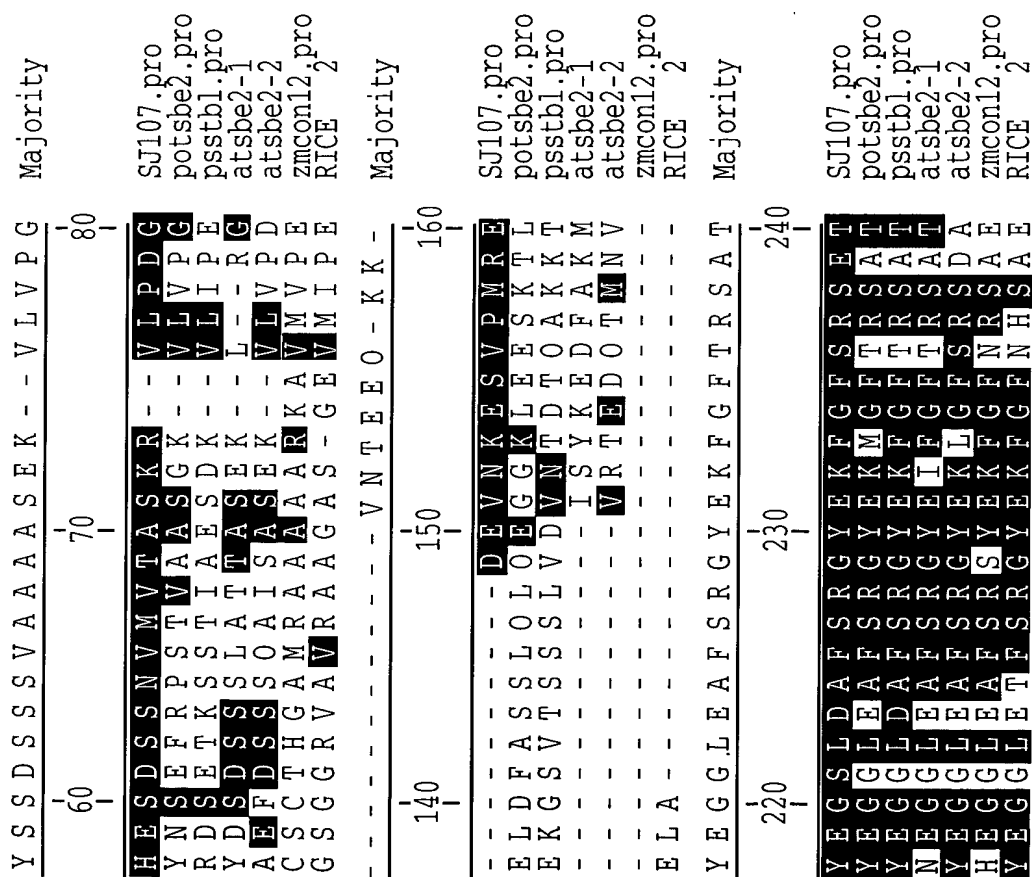


FIG. 8-2



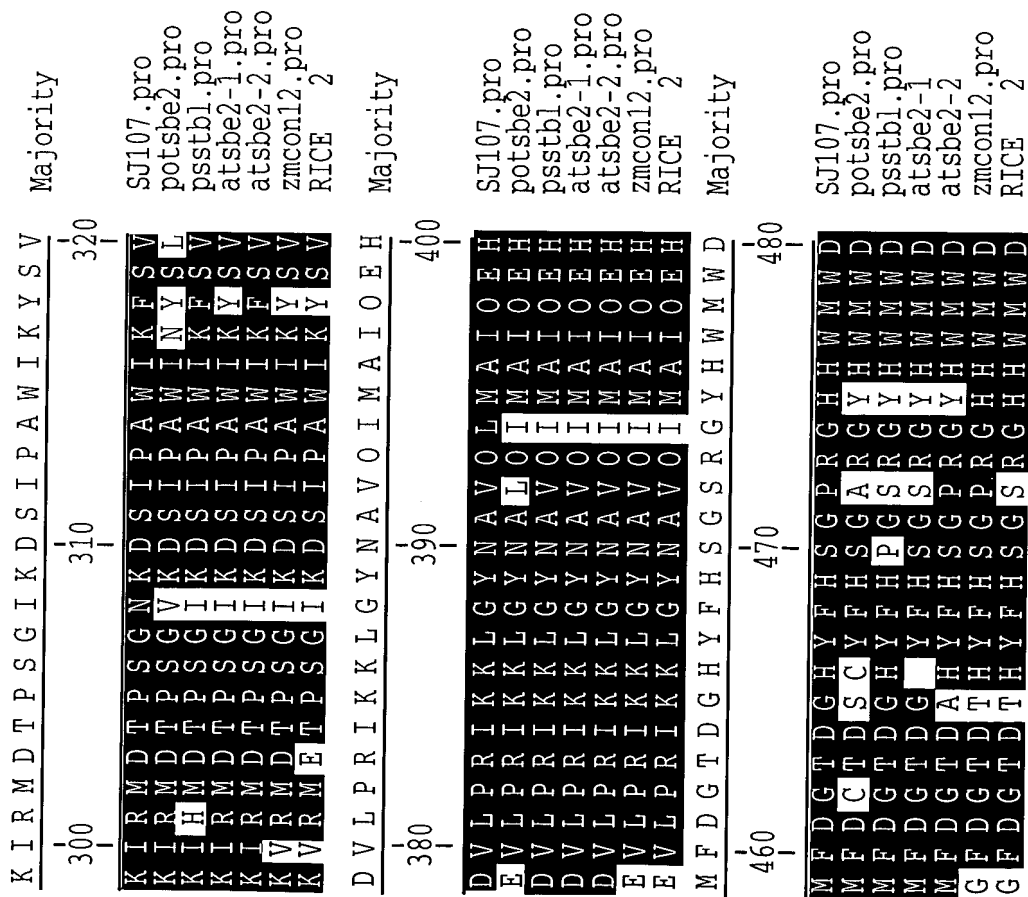


FIG. 8-4

S R L F N Y G S W E V L R Y L L S N A R W W L E E Y K F D G G F R F D G V T S M M Y T H H G L O V G F T G N Y N E Y F G

490 500 510 520 530  
S R L F N Y G S W E V L R Y L L S N A R W W L E E Y K F D G G F R F D G V T S M M Y T H H G L O V G F T G N Y N E Y F G  
S R L F N Y G S W E V L R Y L L S N A R W W L E E Y K F D G G F R F D G V T S M M Y T H H G L O V G F T G N Y N E Y F G  
S R L F N Y G S W E V L R Y L L S N A R W W L E E Y K F D G G F R F D G V T S M M Y T H H G L O V G F T G N Y N E Y F G  
S R L F N Y G S W E V L R Y L L S N A R W W L E E Y K F D G G F R F D G V T S M M Y T H H G L O V G F T G N Y N E Y F G  
S R L F N Y G S W E V L R Y L L S N A R W W L E E Y K F D G G F R F D G V T S M M Y T H H G L O V G F T G N Y N E Y F G  
Y P E A I T I G E D V S G M P T F C L P V O D G G V G F D Y R L H M A V A D K K W I E L L K K R D E D W K M G D I V H T

570 580 590 600 610  
P P E A V T I G E E D V S G M P T F C L P V O D G G V G F D Y R L H M A V A D K K W I E L L K K R D E D W K M G D I V H T  
P P E A V T I G E E D V S G M P T F C L P V O D G G V G F D Y R L H M A V A D K K W I E L L K K R D E D W K M G D I V H T  
P P E A V T I G E E D V S G M P T F C L P V O D G G V G F D Y R L H M A V A D K K W I E L L K K R D E D W K M G D I V H T  
Y P E A I T I G E E D V S G M P T F C L P V O D G G V G F D Y R L H M A V A D K K W I E L L K K R D E D W K M G D I V H T  
Y P E A I T I G E E D V S G M P T F C L P V O D G G V G F D Y R L H M A V A D K K W I E L L K K R D E D W K M G D I V H T  
Y P E A I T I G E E D V S G M P T F C L P V O D G G V G F D Y R L H M A V A D K K W I E L L K K R D E D W K M G D I V H T  
V G D K T I A F W L M D K K D M Y D F M A L D R P S T P L I D R G I A L H K M I R L I T M G L G G E G Y L N F M G N E F

650 660 670 680 690  
V G D K T I A F W L M D K K D M Y D F M A L D R P S T P L I D R G I A L H K M I R L I T M G L G G E G Y L N F M G N E F  
V G D K T I A F W L M D K K D M Y D F M A L D R P S T P L I D R G I A L H K M I R L I T M G L G G E G Y L N F M G N E F  
V G D K T I A F W L M D K K D M Y D F M A L D R P S T P L I D R G I A L H K M I R L I T M G L G G E G Y L N F M G N E F  
V G D K T I A F W L M D K K D M Y D F M A L D R P S T P L I D R G I A L H K M I R L I T M G L G G E G Y L N F M G N E F  
V G D K T I A F W L M D K K D M Y D F M A L D R P S T P L I D R G I A L H K M I R L I T M G L G G E G Y L N F M G N E F  
V G D K T I A F W L M D K K D M Y D F M A L D R P S T P L I D R G I A L H K M I R L I T M G L G G E G Y L N F M G N E F

FIG. 8-5

L A T D V D A V V Y L M L V N D L I H G L	Majority	
540	550	560
A A T D V D A V V Y L M L V N D L I H G L	SJ107.pro	
L A T D V D A V V Y L M L V N D L I H G L	potsbe2.pro	
L A T D V D A V V Y L M L V N D L I H G L	psstbl.pro	
A S T D V D A V V Y L M L V N D L I H G L	atsbe2-1.pro	
L E T D V D A V V Y L M L V N D L I H G L	atsbe2-2.pro	
F A T D V D A V V Y L M L V N D L I H G L	zmcon12.pro	
F A T D A D A V V Y L M L V N D L I H G L	RICE 2	
L T N R R W L E K C V S T A E S H D O A L	Majority	
620	630	640
L T N R R W L E K C V S Y A E S H D O A L	SJ107.pro	
L T N R R W L E K C V S Y A E S H D O A L	potsbe2.pro	
L T N R R W L E K C V V Y A E S H D O A L	psstbl.pro	
L T N R R W L E K C V V Y A E S H D O A L	atsbe2-1.pro	
L T N R R W L E K C V I S Y A E S H D O A L	atsbe2-2.pro	
L T N R R W L E K C V T Y A E S H D O A L	zmcon12.pro	
L T N R R W L E K C V T Y A E S H D O A L	RICE 2	
G H P E W I D F P R G E O H L P D G K V I	Majority	
700	710	720
G H P E W I D F P R G D L H L P S G K F V	SJ107.pro	
G H P E W I D F P R A E O H L S D G S V I	potsbe2.pro	
G H P E W I D F P R G E O H L P N G K I V	psstbl.pro	
G H P E W I D F P R G T D O H L P D G R V I	atsbe2-1.pro	
G H P E W I D F P R G E O R L S D G S V I	atsbe2-2.pro	
G H P E W I D F P R G P O R L P S G K F I	zmcon12.pro	
G H P E W I D F P R A P O V L P N G K F I	RICE 2	

FIG. 8-6



R V I V F E R G N L V F V F N F H W T N S Y											
Majority											
SJ107.pro											
potsbe2.pro											
psstbl.pro											
atsbe2-1.pro											
atsbe2-2.pro											
zmcon12.pro											
RICE 2											
Majority											
SJ107.pro											
potsbe2.pro											
psstbl.pro											
atsbe2-1.pro											
atsbe2-2.pro											
zmcon12.pro											
RICE 2											
Majority											
SJ107.pro											
potsbe2.pro											
psstbl.pro											
atsbe2-1.pro											
atsbe2-2.pro											
zmcon12.pro											
RICE 2											
Majority											
SJ107.pro											
potsbe2.pro											
psstbl.pro											
atsbe2-1.pro											
atsbe2-2.pro											
zmcon12.pro											
RICE 2											
Majority											
SJ107.pro											
potsbe2.pro											
psstbl.pro											
atsbe2-1.pro											
atsbe2-2.pro											
zmcon12.pro											
RICE 2											
Majority											

FIG. 8-8



FIG. 9

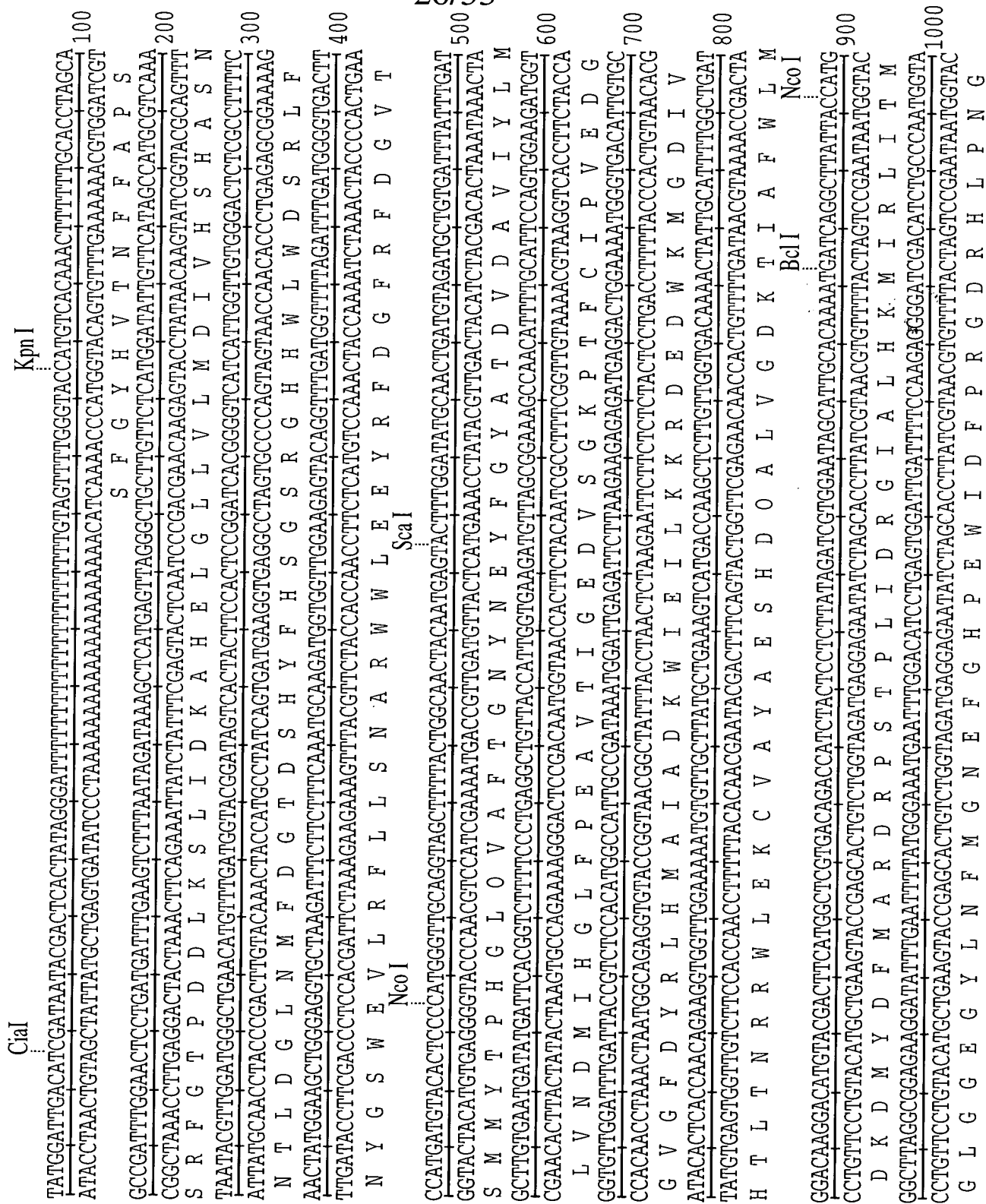
25/33

ATGACAAGGATATGATGACTTCATGGCTCTTGACAGACCATCTACTCCTCTCATAGATCGTGGAGTAGCAATTCACAAAAATGATCAGGCTTATTACCA  
 TACCTGTTCCCTATACATACTGAAGTACCGAGAACTGTGTGGTAGATGAGGAGAGTATCTAGCACCTCATCGTAACGTGTTTACTAGTCCGAATAATGGT 100  
 M D K D M Y D F M A L D R P S T P L I D R G V A L H K M I R L I T  
 TGGGATTAGCGGAGAGGATATTGAATTTTATGGAAATGAATTTGGACACCCGAGTGGATTGATTTTCAAGAGGTGATCTACATCTCCCACTGG 200  
 ACCCTAATCCGCCCTCTCCCTATAAACTTAAATACCCCTTACTTAAACCTGTGGGCTCACCTAACTAAAGGTCTCCACTAGATGTAGAAGGTCACC  
 M G L G G E G Y L N F M G N E F G H P E W I D F P R G D L H L P S G  
 Bcl I  
 EcoR V  
 TAAATTTGTTCCCTGGGAACAATTACAGTTATGATAAATGCCGGCGTAGGTTTGATCTAGGCAATTCAAAGCGTCTGAGATATCATGGAATGCAAGAGTTT 300  
 ATTTAAACAAGGACCCCTGTTAATGTCAATACATACTATTACGGCCGCATCCAAACTAGATCCGTTAAGTTTCGCAGACTCTATAGTACCTTACGTTCTCAAA  
 K F V P G N N Y S Y D K C R R F D L G N S K R L R Y H G M O E F  
 GATCAAGCAATTCAGCATCTTGAAGAAGCCTATGGTTTCATGACTTCTGAGCACCATAATACATATCACGGAAGGATGAAAGGATCGGATCATTTGTCTTCG 400  
 CTAGTTCTGTTAAGTCGTAGAACTTCTTCGGATACCAAGTACTGAAGACTCGTGGTTATGTATAGTGCCTTCTCTACTTTCCCTAGCCTAGTAACAGAAAGC  
 D O A I O H L E E A Y G F M T S E H O Y I S R K D E R D R I I V F  
 AGAGGGAAACCTCGTTTGTATTCAATTTTCATTTGGACTAGCAGCTATTCGGATTACCGAGTTGGCTGCTTAAAGCCAGGAAGTACAGATAGTCTT 500  
 TCTCCCTTTGGAGCAAAAACATAAGTTAAAGTAACCTGATCGTCGATAAGCCTAATGGCTCAACCGACGAATTTCCGTCCTTTTCAATGTTCTATCAGAA  
 E R G N L V F V F N F H W T S S Y S D Y R V G C L K P G K Y K I V L  
 GGATTCAGATGATCCTTTGTTGGAGGCTTTGGCAGGCTTAGTCATGATGACAGACACTTCAGCTTTGAAGGTGGTACGATAACCCGGCCTCGATCCTTC 600  
 CCTAAGTCTACTAGGAACAACACCTCCGAACCCGTCGAAATCAGTACTACGTCGTGAAGTCGAAACTTCCACCATGCTATTGGCCGAGCTAGGAAG  
 D S D D P L F G G F G R L S H D A E H F S F E G W Y D N R P R S F  
 ATGGTGTACACACCATGTAGAACAGCAGTGGTCTATGCTTTAGTGGAGGATGAAGTGGAGAAATGAAGTGAACCTGTCCCGGTTAAGATATATCTTAGC 700  
 TACCACATGTGTGGTACATCTTGTGTCACCAATACGAAATCACCTCCTACTTCACCTCTTACCTTGGACAGCGGCCAATTCATATAGAAATCG  
 M V Y T P C R T A V V Y A L V E D E V E N E V E P V A G  
 AACAGGTTCTGAAGCAGGAATGCCATTATTGATCTTCCATGTGTCATCTCGGTTGAACGAAATATATTGAGCCTATAATTTGATGTACGGTCTTCAG 800  
 TTGTCCAAAGACTTCGTCCTTACGGTAATAACTAGAGGATACACGTAGACGCAACTTGCCTTTATATACTCGGATATTAAACTACAGTCCAGGAACGTC  
 ATTTCCATCTCGGTTCTTGGTATTTTGTGTCATGATAACATAATAAGACCAATAAGGAAACGAGGTTACATGTAGCTTCCATCATCATAGGGAG 900  
 TAAAGGTAGACCAAGAACCATATAAACACAGTACTATTTTGTATTAGTTTCTGGTTATCCCTTTCGCTGCCCAATGTACGATCGAAGGTAGTAGTATCCCTC  
 Bcl I  
 CTCAGACCTCTAAACCATAAATCTTCAAGCTGCCTCGCTTCGGTAGTATGTTATGTGTTACTTTGCAATCTTAAATATATCATGATCGCTGTGGATGCTA 1000  
 GAGTCTGGAGGATTTGGTATTTAGAACTTCGACGGCAGCAAGCCATCATACAATACACCATGAACGTTAGAAATTTAATAGTACTAGCGACACCTTACGAT  
 ACTATGACAAATTTTGTATATATGCCAACGAGGATTTTAAAGTTTTTAAAAAACAACAAAAATCCATG  
 TGATCTGTAAACACATATATACGGTTGCTCTCTTAAATTTTCAAAATTTTCTTCTGTTTTTTTTTTAGGTAC 1069

FIG. 10-1

FIG. 10-2

FIG. 10



[illegible]

AAAAAAAAAAAAAAAAAAAAA  
↑  
1919

FIG. 10-2

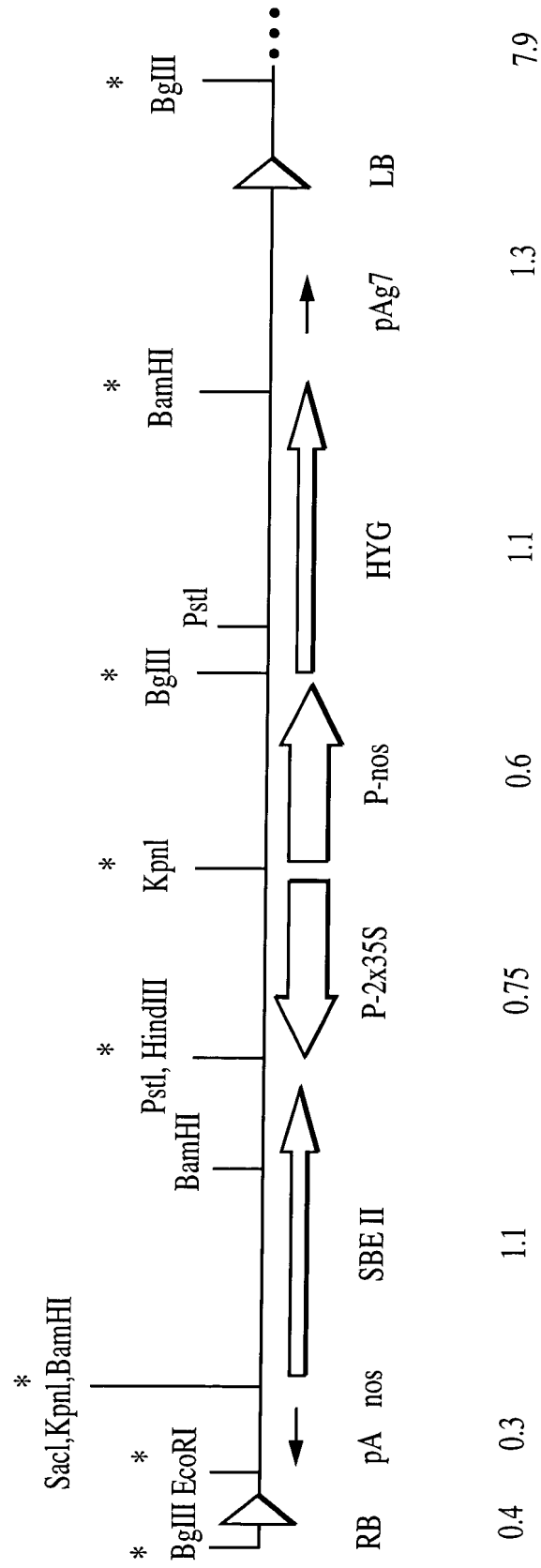


FIG. 11

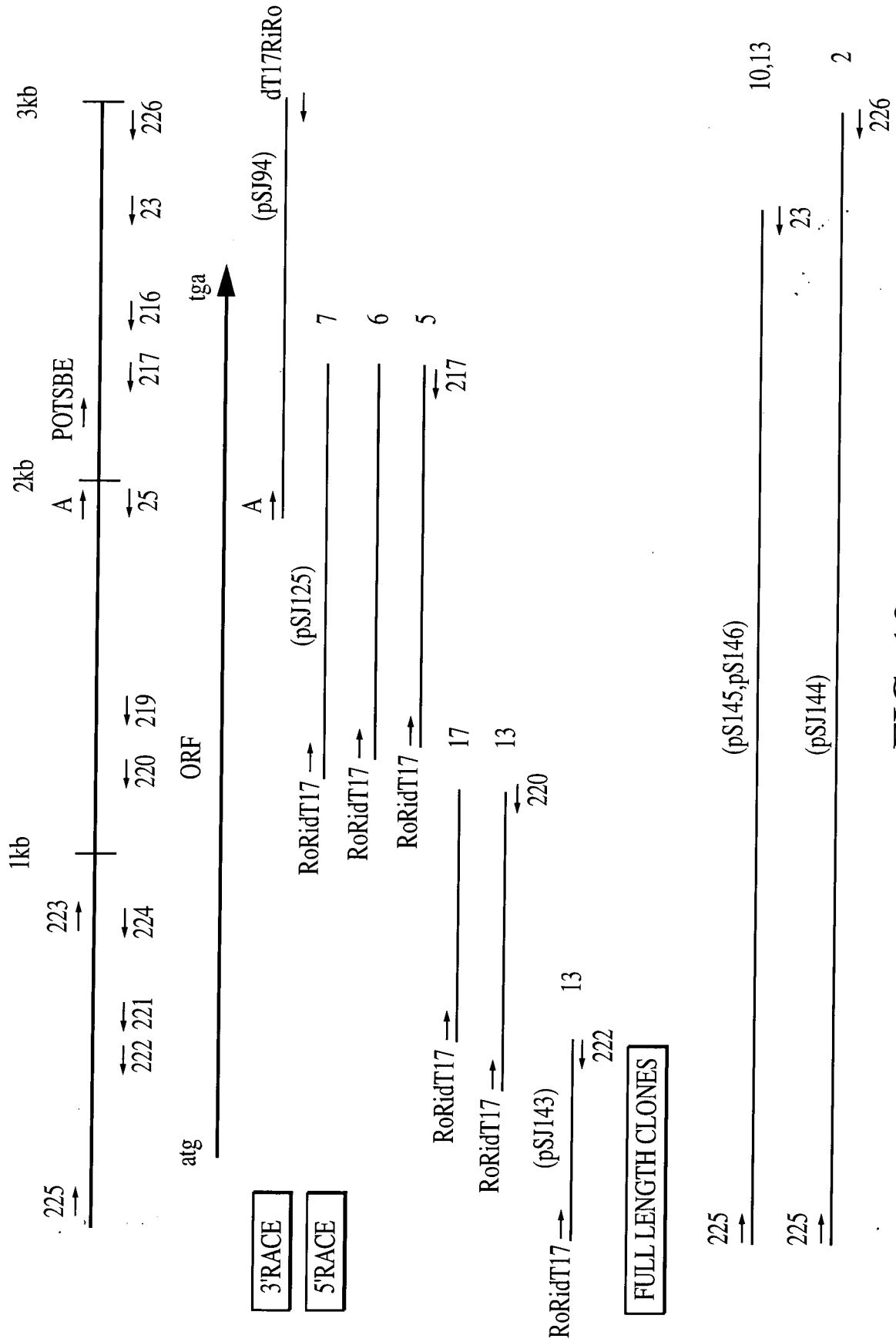


FIG. 12

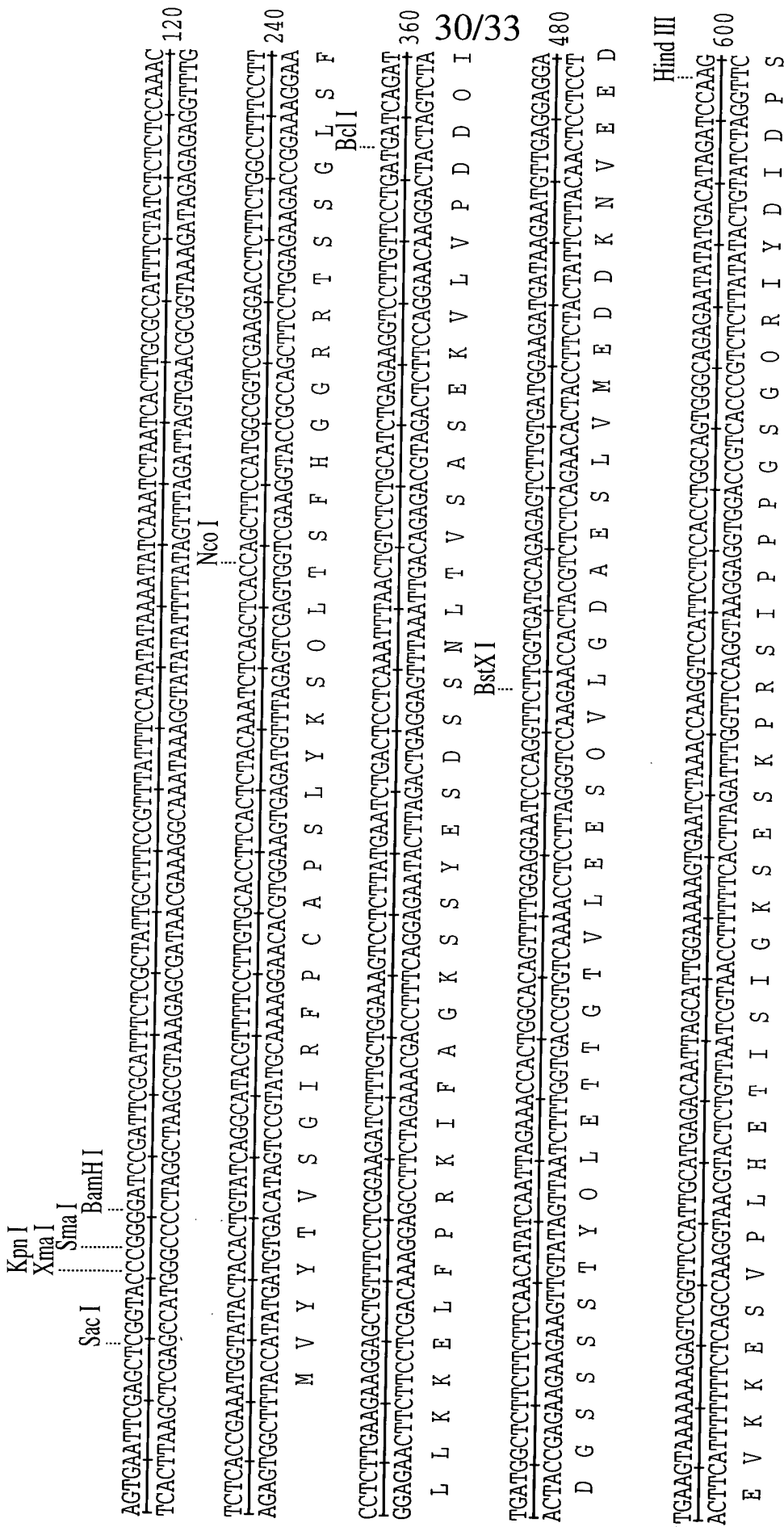


FIG. 13-1  
 FIG. 13-2  
 FIG. 13-3  
 FIG. 13-4

FIG. 13  
 FIG. 13-1

Nsi I

CTTGGCAGGTTTCCGTCAGCATCTTGACTACCGATATTACAGTACAAAGCGTCGTGAGGAAATGACAAGTATGAAGTGGTTTGGATGCAITCTCTCGTGGATTTGAAAAGTTTGG 720  
GAACCGTCCAAAGGCAGTCGTAGAACTGATGGCTATAAGTGTTCATGTTTCCGACGCACCTCTTTAACTGTTCATACCTTCCACCAACCTACGTAAAGAGACACCTAAACITTTTCAAAC

L A G F R O H L D Y R Y S O Y K R L R E E I D K Y E G G L D A F S R G F E K F G

TTTCTTACGCAGTGAACACAGGAATAACTTATAGGGAATGGGCACCTGGAGCTACGTGGGTGCACTTATTGGAGATTTCACAAATGGAATCCTAATGCGATGTCACTCGGAATGA 840  
AAAGAATGCGTCACITTTGTCTTATTTGAATATCCCTTACCCGTGGACCTCGATGCACCCGACGTGAATAACCTCTAAAGTTGTTAACCTTAGGATTACGTCTACAGTACTGAGCCCTTACT

F L R S E T G I T Y R E W A P G A T W A A L I G D F N N W N P N A D V M T R N E

GTTTGGTGTCTGGGAGATTTTGTGCCAAATAACGCAGATGGTTTACCACCAATTCCTCATGGTTCTCGAGTAAAGATACGCATGGATACCTCCATCTGGCATCAAAGATTCAAATTCCTGTC 960  
CAAAACACAGACCCCTCTAAAAAACGGTTTATTGCGTCTACCAAGTGGTGGTTAAGGAGTACCAAGAGCTCAITTTCTATCGGTACCTATGAGGTAGACCGTAGTTTCTAAGTTAAGGACG

F G V W E I F L P N N A D G S P P I P H G S R V K I R M D T P S G I K D S I P A

TTGGATCAAGTTCTCAGTTACGCACCTGGTGAATCCCATACAAATGCCATATACATGATCCACCAAGGAGGAGAACTATGTGTTCAAACATCTCTCAGCCAAAGAGACCAAAATCACT 1080  
AACCTAGTTCAGAGTCAAGTCCGTGGACCACTTTAGGGTATGTTACGGTATATGATGATAGTGGTGGTTTCTCTCTCTTCATACACAAGTTTGTAGGAGTCGGTTTCTCTGGTTTCTTACTGA

31/33

W I K F S V O A P G E I P Y N A I Y Y D P P K E E K Y V F K H P O P K R P K S L

Nde I

Hind III

TAGGATTTATGAATCTCATGTGGGATGAGTAGTATGGAGCCCAATAATTAACACATATGCCAACTTTAGAGATGATATGCTTCTCGCATCAAAAAGCTTGGCTACAATGCTGTTCAGAT 1200  
ATCCTAAATACTTAGAGTACAACCCCTACTCATCATACCTCGGTATTAAATTTGTGTATACGGTTGAAATCTCTACTATACGAAGGAGCGTAGTTTTCGAAACCGATGTTACGACAAGTCTA

R I Y E S H V G M S S M E P I I N T Y A N F R D D M L P R I K K L G Y N A V O I

Kpn I

CATGGCTATTCAAGAGCATTCCTATTATGCTAGTTTGGGTACCATGTCTACAAAACITTTTGCACCTAGCAGCCGATTTGGAACCTCCTGATGATTTGAAGTCTTTAATAGATAAAGCTCA 1320  
GTACCGATAAGTTCTCGTAAGGATAATACGATCAAAACCCATGGTACAGTGTTTGAAAAAACGTGGATCGTCCGGCTAAACCTTGAGGACTACTAACTTCAGAAAATTATCTATTTCCAGT

M A I O E H S Y Y A S F G Y H V T N F F A P S S R F G T P D D L K S L I D K A H

TGAGTTAGGGCTGCTTGTCTCATGGATATTGTTCAATAGCCATCGGTCAAATAATACGTTGGATGGCTGAACATGTTTGTATGGTACGGATAGTCACTACTTCCACTCCCGATACACGGGG 1440  
ACTCAATCCCGACGAACAGAGTACCTATAACAAGTATCGGTACGCAGTTTATTATGCAACCTTACCCGACITTTGTACAAACTACCATGCCTATCATGATGAAGGTGAGGCCCTAGTGCCTCC

E L G L L V L M D I V H S H A S N N T L D G L N M F D G T D S H Y F H S G S R G

FIG. 13-2

TCATCATTTGGTGTGGGACTCTCGCCTTTTCAACTATGGAAGCTGGAGGTGCTAAGATTTCCTCTTCAAAATGCAAGATGGTGGTTGGAAGAGTACAGGTTTGATGGTTTATGATTTGA 1560  
 AGTAGTAACCAACACCCCTGAGAGCGGAAAAGTTGATACCTTCGACCCCTCCACGATTCTTAAGAAGAAAGTTTACGTTTACCACCAACCTTCTCATGTGTCACAACTACCAAAATCTAAACT  
 H H W L W D S R L F N Y G S W E V L R F L L S N A R W W L E E Y R F D G F R F D  
 NcoI ScaI  
 TGGGTGACTTCCATGATGTACACTCCCCATGGGTTGCAGGTAGCTTTTACTGGCAACATACAAATGAGTACTTTTGGATATGCAACTGATGTAGATGCTGTGATTTATTTGATGCTTTGTGAA 1680  
 ACCCACTGAAGGTACTACATGTGAGGGGTACCCACGTCATCGAAAATGACCGTTGATGTGTACTCATGAACCTATACGTTGACTACATCTACGACACTAAATAAACTACGAAACACTT  
 G V T S M M Y T P H G L O V A F T G N Y N E Y F G Y A T D V D A V A Y L M L V N  
 TGATATGATTCACGGTCTTTTCCCTGAGGCTGTACCAATGGTGAAGATGTTAGCGGAAAAGCCAAACATTTTGCATTCACAGTGAAGATGGTGGTGTGGATTTGATTACCGTCTCCACAT 1800  
 ACTATACTAAGTGCAGAAAAGGACTCCGACAAATGGTAACCACTTCTACAATCGCCTTTCGGTTGTAAACGTAAGGTACCTTCTACCACCACCACTTAACTAAATGGCAGAGGTGTA  
 D M I H G L F P E A V T I G E D V S G K P T F C I P V E D G G V G F D Y R L H M  
 GGCCATTGCCGATAAATGGATTGAGATTCTTAAGAAGAGAGATGAGGACTGGAAAATGGGTGACATTTGTGCATACACTACCAACAGAGGTGGTTGGAAAAAATGTGTGCTTATGCTGA 1920  
 TTCAGTACTGTTTCGAGAACCAACCACTGTTTGTATAACGTAAACCGGACTACCTGTTCCTGTACATGCTGAAGTACCGAGCACTGTCTGGTAGATGAGGAGAAATATCTAGCACCTTATCG  
 A I A D K W I E I L K K R D E D W K M G D I V H T L T N R R W L E K C V A Y A E 32/33  
 AAGTCATGACCAAGCTCTTGTGTGTGACAAAACATAATGCAATTTGGCTGATGGACAAGGACATGTACGACTTCTATGGCTCGTGACAGACCATCTACTCTCTTATAGATCGTGGAAATAGC 2040  
 TTCAGTACTGTTTCGAGAACCAACCACTGTTTGTATAACGTAAACCGGACTACCTGTTCCTGTACATGCTGAAGTACCGAGCACTGTCTGGTAGATGAGGAGAAATATCTAGCACCTTATCG  
 S H D O A L V G D K T I A F W L M D K D M Y D F M A R D R P S T P L I D R G I A  
 BclI NcoI  
 ATTGCACAAAATGATCAGGCTTATTACCATGGGCTTAGCGGAGAGGATATTTTGAATTTTATGGGAAAATGAATTTGGACATCCTGAGTGGATTGATTTTCAAGAGGGGATCGACATCT 2160  
 TAACGTGTTTACTAGTCCGAATAATGGTACCCGAATCCGCCCTCTTCCCTATAAACTTAAATAACCCCTTTACTTAAACCTGTAGGACTCACCTTAACATAAAAGGTTCTCCCCCTAGCTGTAGA  
 L H K M I R L I T M G L G G E G Y L N F M G N E F G H P E W I D F P R G D R H L  
 BclI  
 GCCCAATGGTAAAGTAATCCAGGGAACAACACAGTTATGATAAATGCCGTGCTAGATTTGATCTAGGTGATGACACACTATCTAAGATATCATGGAATGCAAGAGTTTGATCAGGCAAT 2280  
 CCGGTACCATTTCATTAAGGTCCCTTGTGGTGTCAATACTATTACGGCAGCATCTAACTAGATCCCACTACGCTGTGATAGATTCTATAGTACCTTACGTTCTCAAACTAGTCCGTTA  
 P N G K V I P G N N H S Y D K C R R R F D L G D A D Y L R Y H G M O E F D O A M

FIG. 13-3



GC AACATCTTGAAGAAGCCATATGGTTTCATGACTTCTGAGCACCAAGTATATATACAGGAAGGATGAAGGAGATCGGATCATGTCTTTGAGAGGGGAAAAACCTTGTTTGTATTCAACTT 2400  
CGTTGTAGAACTTCTTCGGATACCAAGTACTGAAGACTCGTGGTCATATATAGTGCCTTCCCTACCTTAGCCTAGTAACAGAACTCTCCCTTTGGAAACAAAACATAAGTTGAA  
O H L E E A Y G F M T S E H O Y I S R K D E G D R I I V F E R G N L V F V F N F  
TCATTGGACTAACAGCTATTCAAGATTACCGAGTTGGCTGCTTCAAGTCAGGAAAGTACAAGATTGTTTTGGAATCGGATGATGGCTTGTTTGGAGGCTTCAACAGGCTTAGTCATGATGC 2520  
AGTAACCTGATTGTCGATAAGCTTAATGGCTCAACCGACGAAGTTCAGTCCCTTTCATGTCTTAACAAAACCTGAGCCTACTACCGAACAACCTCCGAAGTTGTCCGAATCAGTACTACG  
H W T N S Y S D Y R V G C F K S G K Y K I V L D S D D G L F G G F N R L S H D A  
CGAGCACTTCACCTTTACGGGTGGTATGATAACCGGCCCTCGGTCTTCATGGTATATGCACCATCTAGGACAGCAGTGGTCTATGCTTTACTAGAAGATGAAGAGAATGAAGCAGAGAA 2640  
GCTCGTGAAGTGAAACTGCCACCATACTATTGGCCGGAGCCAGGAAGTACCATATACGTGGTAGATCCTGTGCTCACCAGATACGAAATCATCTTCTACTCTCTTACTTCTCGTCTCTT  
E H F T F D G W Y D N R P R S F M V Y A P S R T A V V Y A L V E D E N E A E N  
BamHI HincII  
TGAAGTAGAAAGTGAAGTGAACAGCCCTCCGGCTGAGATAGATATTTAGTAAGAGGATCCCCCTAAAGCAGGAATGGTTAACCTGTGCACTGCACTGAACCGCATATATTGAGACTGGA 2760  
ACTTCATCTTTCACTTCACTTTGGTTCGGAGGCCGACTCTATCTATCAAATCATCTCTCCTAGGGGATTTCGTCTCTTACCAATTGGACACCGTAGACGTAACCTTGCTGCATATAACTCTGACCT 333/33  
E V E S E V K P A S G  
NdeI XbaI HincIII PstI SalI  
AATCCATATGACTAGTAGATTCCTCTAGAGTCGACCTGCAGGCATG 2805  
TTAGGTATACTGATCATCTAGGAGATCTCAGCTGGACGTCCTCGTAC

FIG. 13-4